REMARKS

This Amendment is being filed in response to the Final Office Action mailed April 14, 2009, which has been reviewed and carefully considered. Entry of the present amendment and allowance of the present application in view of the amendments made above and the remarks to follow are respectfully requested.

Claims 1-2 and 4-25 remain in this application, where claims 24-25 have been added. Claims 1, 12, 18-19 and 21 are independent.

In the Final Office Action, claims 1-11 and 18-23 are rejected under 35 U.S.C. §101. This rejection is respectfully traversed. However, without agreeing with the position forwarded in the Final Office Action and in the interest of advancing prosecution, claims 1 and 18 have been amended for better conformance 35 U.S.C. §101, such as tying one of the steps of claim 1 to the apparatus for data processing. It is respectfully submitted that this rejection has been overcome. Accordingly, withdrawal of this rejection is respectfully requested.

In the Final Office Action, claims 1-2, 4-14 and 16-23 are

rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,752,035

(Trimberger). Further, claim 15 is rejected under 35 U.S.C.

§103(a) over Trimberger in view of Official Notice. It is

respectfully submitted that claims 1-2 and 4-25 are patentable over

Trimberger and Official Notice for at least the following reasons.

Trimberger is directed to a method for compiling and executing

programs for a reprogrammable instruction set accelerator (RISA).

A computer program is translated into executable code using RISA

instructions. Techniques for deciding which instructions to

configure into the RISA are provided. As recited on column 15,

lines 19-23:

> most commonly used sequences, which may be
> bounded by size to manage development of the RISAs,
> are collected into separate groups. Each group is
> optimized to form a single RISA instruction that
> performs the whole task. (Emphasis added)

That is, a maximum size is set for the most commonly used

sequences, which are "bounded by size to manage development of the

RISAs." (Column 15, lines 20-21; emphasis added) Each group of

the most commonly used sequences forms "a single RISA instruction

that performs the whole task." (Column 15, lines 22-23; emphasis

added)

It is respectfully submitted that Trimberger does not teach or suggest the combinations of elements as recited in the independent claims. Furthermore, each independent claim includes at least one claim element not found anywhere in Trimberger. For example the method of claim 1 recites (illustrative emphasis provided):

> providing an index information indicating the repetition frequency of said repeated sub-sequence, wherein said index information comprises an **integer** number set in **proportion with a ranking** of said repetition rate of said repeated sub-sequence compared to the repetition rate of other detected repeated sub-sequences; and
> determining an allocation between a processing resource and said repeated sub-sequence based on said index information.

The apparatus of claim 12 and the compiler of claim 18 include similar language to that emphasized above for claim 1. Applicant respectfully submits that claims 12 and 18 also are separately patentable for at least that reason.

Similarly, the compilers of claims 19 and 21 both comprise combinations of claim elements not found in Trimberger, and both claims include at least one element nowhere even suggested by Trimberger. For example claim 19 includes the requirement that

"said compiler is arranged to add to said repeated sub-sequence an instruction specifying said index information." Claim 21 includes the requirement that "said compiler is arranged to add to said output sequence an instruction for indicating that said repeated sub-sequence is not used anymore." For at least these reasons, claims 19 and 21 are separately patentable.

On page 6 of the Final Office Action, it is alleged that column 15, lines 19-23 of Trimberger discloses "determining an allocation between a processing resource and said repeated sub-sequence based on said index information," as recited in independent claim 1, and similarly recited in independent claim 12.

It is respectfully submitted that column 15, lines 19-23 of Trimberger merely discloses that the most commonly used sequences are collected into separate groups, where each group forms a single RISA instruction that performs the whole task. Such a disclosure has nothing to do with allocation between a processing resource and a repeated sub-sequence, let alone performing such an allocation based on the index information, as recited in independent claims 1 and 12.

Assuming, arguendo, that somehow Trimberger discloses determining an allocation between a processing resource and a repeated sub-sequence based on the index information, there is still no disclosure or suggestion in Trimberger that the "index information comprises an **integer** number set in proportion with a ranking of said repetition rate of said repeated sub-sequence compared to the repetition rate of other detected repeated sub-sequences," as recited in independent claim 1, and similarly recited in independent claims 12, 18-19 and 21, as correctly noted on page 6, last line of the Final Office Action.

It is alleged that including an **integer** number in the index information would have been obvious in view of Trimberger's ranking of least used RISA instructions disclosed on column 15, lines 39-44, and most commonly used sequences disclosed on column 15, lines 15-18, since an integer provide ease of storage and manipulation. However, such a motivation finds no support in Trimberger.

Applicants respectfully disagree with the motivation provided in the Office Action. Further, assuming, arguendo, that the motivation is proper, there are innumerable ways to so called

provide ease of storage and manipulation, where including an integer number in an index information, where integer number is set in proportion with a ranking of the repetition rate, may be one such way. An index information that comprises an **integer** number set in proportion with a ranking of the repetition rate, is nowhere disclosed or suggested in Trimberger, and any conclusion otherwise can only be arrived at using impermissible hindsight.

Without using the present application as a road map to reconstruct the present invention, and without the benefit of impermissible hindsight, one skilled in the art would not arrive in an obvious manner to having index information that comprises an **integer** number set in proportion with a ranking of the repetition rate, as recited in independent claims 1, 12, and 18 from the disclosure of Trimberger.

Moreover, even assuming arguendo that Trimberger somehow discloses or suggests an index that indicates repetition frequency, regardless of whether it is an integer, the inventions recited in claims 19 and 21 are separately patentable over Trimberger because these claims include other elements nowhere found or suggested in

Trimberger. For example, claim 19 recites that "said compiler is arranged to add to said repeated sub-sequence an instruction specifying said index information". Claim 21 recites that "said compiler is arranged to add to said output sequence an instruction for indicating that said repeated sub-sequence is not used anymore". Nothing in Trimberger discloses or suggests these claim elements.

Based on the foregoing, it is respectfully submitted that independent claims 1, 12, 18-19 and 21 are allowable over Trimberger, and notice to this effect is earnestly solicited. Claims 2, 4-11, 13-17, 20 and 22-25 respectively depend from one of claims 1, 12, 18-19 and 21 and accordingly are allowable for at least this reason as well as for the separately patentable elements contained in each of said claims. Accordingly, separate consideration of each of the dependent claims is respectfully requested.

For example, claim 4 recites that "said allocation is determined by comparing said integer number with the number of available processing resources." (Illustrative emphasis provided)

These features are nowhere disclosed or suggested in Trimberger. Rather, column 15, lines 39-44 of Trimberger, cited on page of the Final Office Action in rejecting claim 4, merely recites that the "least used RISA instructions are **converted back** into fixed instructions, or to a combination of fixed instructions and simpler RISA instructions, **until** the used RISA instructions **fit** within the available configurable resources." (Emphasis added) Converting RISA instructions back into fixed or simpler instructions until the used RISA instructions fit within the available configurable resources has nothing to do with determining allocation **by comparing** the integer **number set in proportion with a ranking** of the repetition rate **with the number of available** processing resources, as recited in claim 4.

In addition, the recitation on column 15, line 19-23 of Trimberger, cited in rejection claim 6 on page 8 of the Final Office Action, that the "most commonly used sequences, which may be bounded by size to manage development of the RISAs, are collected into separate groups," merely discloses that the most commonly used sequences are collected in a groups that have a maximum size or are

"<u>bounded by size to manage development of the RISAs</u>." (Emphasis

added) The disclosure that a group has a maximum size does not

disclose or suggest that "said index information comprises an

information indicating the **number** of instructions in said repeated

sub-sequence," as recited in claim 6. (Illustrative emphasis

provided)

Further, in rejecting claim 7 and 21, on pages 8-9 of the

Final Office Action, column 15, lines 39-42 of Trimberger is cited

which merely disclose finding the least often used RISA

instructions and converting them "back into fixed instructions, or

to a combination of fixed instructions and simpler RISA

instructions, until the used RISA instructions fit within the

available configurable resources." (Column 15, lines 41-44) It is

respectfully submitted that converting RISA instructions back to

fixed or simpler RISA instruction does not disclose or suggest

deleting such instructions. There is simply no disclosure or

suggestion in Trimberger of "generating an instruction for **deleting**

said repeated sub-sequence," as recited in claim 7.

Even if assuming, arguendo, that deleting is equivalent to

converting back, there is still no disclosure or suggestion in

Trimberger of deleting "**if** said repeated sub-sequence is **no longer**

detected for a predetermined time period, **and resetting** a

processing unit to which said deleted repeated sub-sequence was

allocated," as recited in claim 7, or "wherein said compiler is

arranged to **add** to said output sequence an instruction for

indicating that said repeated sub-sequence is **not used anymore**," as

recited in claim 21. (Illustrative emphasis provided) Trimberger

is completely silent about resetting anything. Further, there is

nothing in Trimberger about forming or converting RISA

instructions, regardless of whether that sub-sequence is allocated

to any particular processing unit, that discloses or suggests the

features or claim 21 to add an instruction to an output sequence

that indicates a repeated subsequence is not used anymore.

In addition, column 15, lines 19-23 and 39-44 of Trimberger,

cited on page 7 of the Final Office Action in rejection claims 2,

17 and 19, do not disclose or suggest that "said compiler is

arranged to **add** to said repeated sub-sequence an instruction

specifying said index information," as recited in claim 19 and

similarly recited in claim 2. (Illustrative emphasis provided)

Rather, the noted sections of Trimberger merely disclose collecting

the most commonly used sequences into groups, where each group is

optimized to form a single RISA instruction that performs the whole

task, and that least used RISA instructions are converted back into

fixed or simpler RISA instructions, until the used RISA

instructions fit within the available configurable resources. Such

a disclosure has nothing to do with **adding** to the repeated sub-

sequence an _instruction_ specifying the index information, as

recited in claim 19.

Even assuming, arguendo, that Trimberger's disclosure of

creating an RISA instruction to allow a program to control or

invoke execution of code on an RISA discloses the use of repetition

frequency of a repeated sub-sequence (which it certainly does not

explicitly discuss), nowhere does Trimberger disclose or suggest

the features of claim 19 to add an instruction that specifies index

information to a repeated sub-sequence.

Further, as correctly noted on page 11 of the Final Office

Action, Trimberger does not disclose or suggest the apparatus is a

digital signal processor (DSP). However, Official Notice is taken

that it would have been known to use a DSP for an apparatus that

processes information based on a sequence of instructions including

providing an index information indicating the repetition frequency

of a repeated sub-sequence. Applicant respectfully traverses and

requests that the Examiner provide prior art references clearly

illustrating that it is well known to provide such a DSP in the

context of the claimed combination or some other legally cognizable

basis for why the fact that DSPs existed renders the claim

combination obvious.

In addition, Applicant denies any statement, position or

averment of the Examiner that is not specifically addressed by the

foregoing argument and response. Any rejections and/or points of

argument not addressed would appear to be moot in view of the

presented remarks. However, the Applicant reserves the right to

submit further arguments in support of the above stated position,

should that become necessary. No arguments are waived and none of

the Examiner's statements are conceded. And in particular, no

Official Notices are conceded.

In view of the above, it is respectfully submitted that the present application is in condition for allowance, and a Notice of Allowance is earnestly solicited.

Respectfully submitted,

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